DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-006406
Date Inspected: 24-Apr-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson, Rob Walters	**CWI Present:**	☑ Yes ☐ No
Inspected CWI report:	☐ Yes ☑ No ☐ N/A	**Rod Oven in Use:**	☐ Yes ☐ No ☑ N/A
Electrode to specification:	☑ Yes ☐ No ☐ N/A	**Weld Procedures Followed:**	☑ Yes ☐ No ☐ N/A
Qualified Welders:	☑ Yes ☐ No ☐ N/A	**Verified Joint Fit-up:**	☑ Yes ☐ No ☐ N/A
Approved Drawings:	☑ Yes ☐ No ☐ N/A	**Approved WPS:**	☑ Yes ☐ No ☐ N/A
		Delayed / Cancelled:	☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Assembly 102A-1: 4/24/09
a111-1 Forging to a110-1 Base Plate
QA Inspector randomly witnessed OIW welder #S53, Mr. Jerry Shepherd perform submerged arc welding (SAW), multi-pass 25mm fillet welds, on 75mm thick a107 stiffener plate to 100mm thick a110-1 base plate, weld joint identified as W2-05, in the flat position (1F).
QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that Mr. Jerry Shepherd was performing submerged arc welding in accordance with the OIW approved welding procedure specification (WPS 4020) and QA Inspector noticed QC Inspector Rob Walters was present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures.
QA Inspector verified Mr. Jerry Shepherd was currently qualified for this welding process/position and performed a random pre-heat temperature verification and recorded approximately 350 degrees Fahrenheit, which is in accordance to the applicable welding procedure specification.

Hinge-K Pipe Beam Assembly 102A-2: 4/24/09

a111-2 Forging to a110-2 Base Plate
QA Inspector witnessed welder #H49, Mr. Rick Henkle, fitting and tack welding 75mm thick a107 stiffener plate to 100mm thick a110-2 base plate, in the flat position (1F).
QA Inspector noticed QC Inspector Rob Walters was present and monitoring in-process welding parameters (amps/volts) and pre-heat temperatures, to verify compliance with the applicable welding procedure specification (WPS4020).

Hinge-K Pipe Beam Assembly 102A-3: 4/24/09
a111-3 Forging to a110-3 Base Plate
QA Inspector noticed the welding on the CJP (AWS D1.5 TC-U9a-S) a111-3 pipe forging to a110-3 base plate, for pipe beam assembly 102A-3 was complete and sitting idle in the OIW South storage yard, pending 100% final ultrasonic weld inspection.

Hinge-K Pipe Beam Assembly 102A-4: 4/24/09
a111-4 Forging to a110-4 Base Plate
QA Inspector noticed the welding on the CJP (AWS D1.5 TC-U9a-S) a111-4 pipe forging to a110-4 base plate, for pipe beam assembly 102A-4 was complete and was sitting idle in the OIW South storage yard, pending 100% final ultrasonic weld inspection.

Hinge-K Pipe Beam Fuse Assembly 120A-1: 4/24/09
a124-6 Half Fuse to a124-7 Half Fuse
A & G Machining
QA Inspector arrived at A & G Machining on this date, to randomly witness the in-process machining of this fuse assembly 120A-1.
QA Inspector noticed that A & G Machining had completed the second machining cut pass of .150" (3.8mm) and the third, final pass of .160" (4mm) was in-progress.
A&G Machining explained to QA Inspector that this final cut pass should be completed sometime Monday (4/27/09) and are targeting to finish with a 1903mm diameter. See attached pictures.....

Hinge-K Pipe Beam Fuse Assembly 120A-2: 4/24/09
a124-3 Half Fuse to a124-11 Half Fuse
QA Inspector noticed the submerged arc welding (SAW) on the fuse splice (a124-3 to a124-11) was complete and QC Inspector Rob Walters had previously performed 100% preliminary ultrasonic weld inspection on this CJP (AWS D1.5 B-U3c-S) weld joint and found one rejectable indication.
QA Inspector noticed Mr. Rob Walters had previously marked this rejectable area for a non-critical weld repair and the excavation had been performed.
QA Inspector spoke with QC Inspector Rob Walters and Mr. Walters explained that the excavation depth was verified and 100% magnetic particle testing (MT) was performed and no rejectable indications were found, as noted next to the excavation by Mr. Rob Walters.
QA Inspector spoke with QC Inspector Rob Walters and Mr. Walters explained that he was present to verify pre-heat temperatures, prior to the excavation and found the temperatures to be in compliance with the applicable welding procedure specification (WPS 3046).
QA Inspector noticed no welding had been performed on this non-critical weld repair, by end of shift.

Hinge-K Pipe Beam Fuse Assembly 120A-3: 4/24/09
a124-12 Half Fuse to a124-10 Half Fuse
QA Inspector spoke with QC Inspector Mike Gregson and Mr. Gregson explained that the welding was complete on all internal ring stiffeners and the CJP (AWS D1.5 B-U3c-S), fuse splice (a124-12/a124-10), was complete. QC Inspector Mike Gregson also explained that all non-destructive testing was completed by qualified OIW QC Inspectors Rob Walters and Steve Barnett, per AWS D1.5 and contract specifications.
QA Inspector reviewed the applicable OIW non-destructive testing reports, including Visual, Magnetic Particle (MT-2244-125), Ultrasonic (UT-2244-24) and noticed that no rejectable indications were found by OIW QC Inspectors.
QA Inspector performed approximately 10% (preliminary) ultrasonic weld inspection on the CJP (AWS D1.5 B-U3c-S) fuse splice (a124-12/a124-10), designated as weld joint #WM3-18 and found no rejectable indications. QA Inspector notified QC Inspector Mike Gregson of these results and completed the applicable ultrasonic testing report (TL6027). * Note final UT inspection of this fuse will be performed after rough machining. Due to machining of exterior surfaces,OIW will have A&G Machine- machine the weld reinforcement off the butt joint. OIW have submitted a revision to the fab procedure that is currently pending a formal approval.

Hinge-K Pipe Beam Sub-Assembly a124-4: 4/24/09
a125 Ring Stiffener to a124-4 Half Fuse
QA Inspector noticed the submerged arc welding (SAW) on the internal stiffener rings, piece marks identified as a125 & b125, was complete and sub-assembly a124-4 was sitting idle.

Material, Equipment, and Labor Tracking
QA Inspector Sean Vance performed a verification of personnel at Oregon Iron Works, Inc. and witnessed 6 OIW production personnel and 2 QC. The following was observed at A & G Machine: 1 A&G supervisor and 1 A&G machinist using a horizontal lathe.

Summary of Conversations:
As noted above.

WELDING INSPECTION REPORT

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Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer